

Appln No.: 09/877,645
Amdt. dated September 30, 2003
Reply to Office Action mailed on 07/01/03

Amendments to the Specification

Following the Examiner's "Detailed Action" report, attached to the Office Action regarding the Patent Application under reference, the Applicants are respectfully submitting a corrected "DETAILED DESCRIPTION OF THE INVENTION" in lieu of previous DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS, where necessary corrections were made and some specific recitations had to be added to constitute *a definite antecedent basis* that was previously missing in relation to wording used in the Claims, and also to make clear some statements that could be considered as *confusing and unclear*, and **all without entering any new matter**, as contained in the following Marked-up Version, which Clean Version follows herein:

~~DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS~~

~~Description Figures 1 to 4 FIRST EMBODIMENT OF THIS INVENTION~~

DETAILED DESCRIPTION OF THE INVENTION

~~A typical embodiment of the assemblage of the present invention is illustrated in Figure 1, plan view, with the interdental har brush and gum massager stimulator tip retracted in tandem, in the two ends of the toothbrush.~~

This invention provides a means for combining the tooth brushing cleaning function with the gum massage and stimulation function, and the much needed interdental brush function, all in one tool.

The preferred embodiment of the assemblage of the present invention is illustrated in Figure 1, plan view, with the interdental hard brush and gum massage stimulator tip retracted in the end of the toothbrush.

In order to achieve the triple clean effect of this toothbrush, Figure 1 shows the toothbrush [(20)] and its handle (21) ~~of the tool~~ containing at one end the bristles (23) of the brush (22), clustered in groups, to provide the common pattern to fully brush the teeth externally, in a conventional manner. ~~These said bristles are captured in the end of said toothbrush in an elongated pattern and are firmly molded into the toothbrush body (19), as shown in Figure 2.~~ Inside this [[said]] toothbrush _ [[and its]] handle, as shown in Figures 2 & 3, there [[is]] are [[a]] two parallel ~~tubular~~ [[hollow]] recess chambers [(29)] (49) that run[[s]] the full length of the handle. In addition, the handle neck is narrow (24) and slim for a short distance from the brush end up to the area where the user holds the [[said]] handle for ease of entering the mouth and brushing the teeth ~~in the mouth~~. At this point where the user holds the [[tool]] toothbrush, the handle is widened out to provide a wider and firmer grip for grasping [[the tool]] it, and contains recessed into this grip area the ~~said hollow~~ recess chambers [(29)] (49) that [[contains]] hold [[a]] sliding buttons (26) that [[is]] are keyed (36) to [[a]] sliders (34) that slide[[s]] back and forth on the inside of the [[said]] tubular [[hollow]] recess chambers ~~in the tool~~. Attached to the end of [[this said]] the sliders there [[is an]] are extension tubes [(27)] (37) that hold[[s]] the interdental hard brush (28) and the gum massager stimulator tip (30) for brushing in the gaps and spaces between the teeth, and massaging the gums. The [[said]] sliding buttons (26) can be moved horizontally in [[a]] slots (31) that control[[s]] [[its]] their travel distance, in either direction. ~~Movement in one direction extends the interdental hard brush out of one end of the toothbrush, ready for use.~~ Movement in one direction of the [[said]] buttons (26) keyed (36) to [[a]] sliders (34), that [[has]] have [[the said]] internal sliding extension tubes [(27)] (37), each extending independently extends out of the [[one]] end of the toothbrush handle one of the periodontal tools, and [[provides]] movement [[that]] in the opposite direction, retracts ~~the said interdental hard brush that~~

periodontal tool into a pocket (25) its recess chamber ~~[[in]] inside the toothbrush handle below the section where the bristles are molded into the tool. In like manner, Figure 2 & 3 show[s]~~ the opposite end of the toothbrush containing ~~[[an]] two identical sliding buttons (26), [[an]] sliding extension tubes (37), keys (36), and a slider (34) in the long [[hollow]] recess chamber [[(29)]] 42 within the handle section of the toothbrush and the movement of the button extends and retracts the extension tube that is keyed to the slide that holds on its end the gum massager and stimulator tip (30). Movement of the button in the said slot (31) in one direction extends the gum massager and stimulator tip (30), ready for use at the other end of the toothbrush, and movement of the button (26) in the opposite direction retracts it into the handle.~~

32 Figure 4 shows both the gum massager ~~[[and]]~~ stimulator tip (30) and the interdental hard brush (28) retracted into the toothbrush. The toothbrush user has now available all three functional tools in one assembly.

Figure 5 shows the interdental hardbrush extended, and Figure 6 shows the gum massager extended. Figure 6A provides a cross section view of a recess chamber. ~~All three are held firmly in the same tool and readily available for addressing each tooth cleaning function as needed, in any cleaning order, at the user discretion. The ends of the~~ ~~[[said]] internal sliding extension tubes [[(27) and]] (37) are made to accept at either end of the said toothbrush the said gum massager stimulator tip (30) or the [[said]] interdental hard brush (28). any of the priodontal tools.~~ This invention could accept other end attachments such as a toothpick, dental floss, or other dentist recommended cleaning or treatment tools, should they be required. Both the ~~[[said]]~~ gum massager ~~[[and]]~~ stimulator tip (30) and the ~~[[said]]~~ interdental hard brush (28) can be replaced as needed. The respective ~~[[said]]~~ sliding extension tubes have replacement capability. It has been found ~~that if the user applies diligently to all three cleaning, brushing and massaging functions on a regular basis, the life of the three components is about equal, i.e.,~~

~~all three will wear out at about the same time. Therefore, the brush user will replace the inexpensive assembly rather than attempt to replace individual parts. For that reason, no complex latching functions are needed in this triple clean toothbrush.)~~

(The next original paragraph has to be relocated in the text for sequential order.
Please see Page 10 hereon).

old AP (not inter.)

For assembly and manufacturing purposes, and should there be a need for replacement of the [[said]] rubber tip that constitutes the gum massager [[and]] stimulator, or the [[said]] interdental hard brush, the [[said]] extension tubes [(27) or] (37) contain a slit [(17)] (35) down one side, or two sides if needed, to permit the tube to be expanded in diameter and allow insertion of the [[said]] (gum massager and stimulator tip (30) or said interdental hard brush (28) dental tools to be inserted into the interface stem (38), and [[to be]] forceably pressed into the [[said]] extension tube. In Figure [[3A]] 9A an enlarged view shows how the [[said]] slit in the tube side walls capture and hold the stem (18) (38) of the [[said]] gum massager [[and]] stimulator tip, [[and said]] interdental hard brush, by deflection of the [[said]] slit tube side walls. The [[said]] stem is slightly reduced in diameter where the [[said]] sliding tube side walls grasp the [[said]] stem and capture it. The [[said]] stem contains minor indentations to impede easy removal from the [[said]] slit extension tubes and the inner wall of the [[said]] extension tubes is course machined to increase the resistance of component accidental removal.

~~Description Figures 5 to 10 SECOND EMBODIMENT OF THIS INVENTION~~

~~This embodiment~~ Figure 7 illustrates an optional embodiment of the toothbrush of the present invention, that also provides a means for combining the tooth brushing cleaning function with the gum massage and stimulation functions, and the much needed interdental brush function, all in one tool, but the assemblage places the interdental hard brush and the gum massager ~~[[and]]~~ stimulator tip are both at ~~[[the]]~~ opposite ends of the toothbrush ~~bristles as shown in Figure 5.~~

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The toothbrush handle (21) of this embodiment contains at one end the toothbrush brush (22) with the bristles (23) clustered in groups in a conventional manner. ~~In this embodiment, Figure [[7]] (8) shows the said handle (21) comprising of two hollow cylinders (32) shown in a the toothbrush in a side view with the two buttons (26) in tandem.~~ A sectional view of Figure ~~[[6]]~~ 9 that runs full length of the ~~[[handle]]~~ toothbrush, ~~it is shown~~ shows that ~~in addition~~ the handle neck is narrow and slim (24) for a short distance from the brush end, for ease of brushing and entering into the mouth. At the point where the user holds the ~~[[said]]~~ handle, it is widened out to provide this wider grip for grasping the tool and the grip is comprised of ~~[[the said]]~~ ~~two hollow cylinders (32)~~ a recess chamber (29) running parallel holding two periodontal tools in tandem to each other, that ~~[[retain]]~~ engages a sliding button (26) that is attached to a slider (34) with a key (36) that runs in a slot (31) and the ~~[[said]]~~ key engages the ~~[[said]]~~ traveling slider (34) that slides back and forth ~~in each of the [[said]] long hollow cylinders recess chamber~~ that comprises the ~~[[said]]~~ handle, as illustrated in Figures 7-8-9-10. The travel length is defined by ~~[[said]]~~ the slot (31) in ~~each of the said hollow cylinders, recess chamber,~~ and the ~~[[said]]~~ key (36) engages both the ~~[[said]]~~ buttons (26) and the ~~[[said]]~~ traveling slider (34). Attached to the end of the ~~[[said]]~~ slider is an extension tube (37) that holds either ~~[[the]]~~ periodontal

~~tool the interdental hard brush (28) for brushing in the gaps and spaces between the teeth. The [[said]] sliding button can be moved a short distance, horizontally, in [[its]] their [[said]] slot, in the two said hollow cylinders, in either direction. Movement in one direction extends, ready for use, the said interdental hard brush one of the periodontal tools out of the end of the [[said]] hollow cylinders chamber that is part of the [[said]] handle of the toothbrush. Movement of the [[said]] button attached to the [[said]] long internal extension tube (27) in the opposite direction, retracts the said interdental hard brush the periodontal tool into the said tube chamber (25) that is part of the said in the toothbrush, below the section where the bristles are molded into the tool. Figure 9 shows a cross section with both periodontal tools extended.~~

~~In like manner, shown in Figure 10, within the second parallel hollow cylinder, but on the opposite side of the said toothbrush handle, the embodiment contains an identical button (26), and sliding tube (37) in the long cavity (29) of the two said hollow cylinders that form the said handle of the toothbrush, and the movement of the button (26) extends and retracts the said extension tube that has attached to its end the gum massager and stimulator tip (30). Figure [[10]] 9 shows the said gum massager and stimulator tip both periodontal tools extended and Figure 10 [[A]] shows [[it]] them retracted into a recess pocket (25) beneath the bristles, in the brush end. Movement in one direction extends out the said gum massager and stimulator tip dental tool, ready for use, and movement of the said button in the opposite direction retracts it into the said hollow cylinder, that is part of the handle of the toothbrush. The [[said]] button that moves the [[said]] slider can be located as shown in sectional Figure 6 on the center of the handle, or at any position around the perimeter of the said cylinders chamber, as shown in Figures 9 and 10.~~

~~The toothbrush user has available all three functional tools in one assembly, all held firmly in the same tool and easily available for addressing each tooth cleaning function as needed, independently, in any cleaning order, at the user discretion.~~

(Next is relocated the original paragraph referred to on Page 7)

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This is P to replace old P on page 7

P2
NEW P
For assembly and manufacturing purposes and should there be a need for replacement of the [[said]] rubber tip that constitutes the gum massager [[and]] stimulator, or the [[said]] interdental hard brush, the [[said]] extension tubes [(27) or] (37), contain a slit [(17)] (35), down one side, or two sides if needed, to permit the tube to be expanded in diameter and allow insertion of the ~~said gum massager and stimulator tip (30) or said interdental hard brush (28)~~ periodontal tool to be inserted into the interface stem 38 and [[to be]] forceably pressed into the [[said]] extension tube. In Figure [[3A]] 9A an enlarged view shows how the [[said]] slit in the tube side walls captures and holds the stem [(18)] 38 of the [[said]] gum massager [[and]] stimulator tip [[and said]] interdental hard brush, by deflection of the [[said]] slit tube side walls. The [[said]] stem is slightly reduced in diameter where the [[said]] sliding tube side walls grasp the [[said]] stem and capture it. The [[said]] stem contains minor indentations to impede easy removal from the [[said]] slit extension tubes and the inner wall of the [[said]] extension tubes is course machined to increase the resistance of component accidental removal.

The ends of the [[said]] internal sliding extension tubes are made to accept either the gum massager [[and]] stimulator tip (28), the interdental hard brush (30) or other dentist recommended cleaning or treatment tools. Both ~~the said gum massager and stimulator tip and the said interdental hard brush~~ periodontal tools can be replaced as needed. The [[said]] sliding tube extensions have replacement capabilities, as shown in Figure [[3A]] 9A. Both ~~said cylinders~~ chambers that form the said inside the handle of the

toothbrush, ~~and contain~~ containing inside the two said additional periodontal tools, have close-out caps (47) hinged to the ~~cylinder~~ chambers' ends to seal them and avoid damage and any possible contamination. The ~~[[said]]~~ close-out caps can be rotated open, as shown in Figure ~~[[7]]~~ 3, by movement of one of the ~~[[said]]~~ buttons (26) to the extend position which pushes open the ~~[[said]]~~ close-out cap. After the cleaning of the respective periodontal tools, following their use, ~~[[the said]]~~ both caps are rotated back into the end of the ~~said cylinders~~ chambers to seal them.

~~Description Figures 11 to 14 THIRD EMBODIMENT OF THIS INVENTION~~

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The assemblage of this optional embodiment of the toothbrush object of the present invention, is shown in Figures 11 - 12 - 13 - 14 , provides the same triple tooth cleaning functions as described in the preferred embodiment, all in one device, and places the interdental hard brush (28) and the gum massager stimulator tip (30) at the opposite end from the conventional bristles of the toothbrush, ~~[[20]]~~ in two recess chambers (49) that run parallel to each other in the handle (21). Within each ~~[[said]]~~ recess chamber there is installed a sliding cover ~~[[20]]~~ (40) for closing out the ~~[[said]]~~ recess chamber, and a tubular support ~~arm (41) that is Tee-shaped with the~~ cross member providing an axis (33) for the said Tee cross member to rotate around a pivot upward out of the ~~[[said]]~~ recess chamber shown in Figure 12. The ~~[[said]]~~ cross member contains two projection pins (43) that work like an axle that locate it in the ~~[[said]]~~ recess chamber (49) and each ~~[[said]]~~ projection pin engages a hole (39) located on the sidewall of the ~~[[said]]~~ recess chamber. With these ~~[[said]]~~ projection pins positioned in their ~~[[said]]~~ mating hole, the ~~[[said]]~~ support can be rotated around the ~~[[said]]~~ axis provided by these ~~[[said]]~~ projection pins, as shown in Figure 13.

The other end of the [[said]] tubular support arm (41) provides a sliding extension tube (37) with the slit sidewalls as previously shown in Figure [[3A]] 2A, for insertion of the interdental hard brush (28) or the gum massager [[and]] stimulator tip (30). As the tubular support arm is narrow and sits in its ~~-said toothbrush handle-~~ recess chamber, with ample room about it, then the user can easily grasp it with his fingers and rotate it out of the [[said]] handle recess chamber. After rotation to the extended work position, the cover (40) can be slid over the pivot point projection pins (43) and locks it in the extended location, as shown in Figure 14. The recess chamber that contains these rotating tools can be located on any side of the [[said]] handle. ~~that is available.~~

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In this optional embodiment, each [[said]] recess chamber (49) in [[said]] the toothbrush handle is provided with [[said]] a sliding cover (40) shown in Figure 11, that protects the internal dental tools from damage by handling and contamination. Figure. 12 ~~in this embodiment~~ shows the [[said]] covers slid back in the open position and the tools are available in their protective recess chambers (49). With the [[said]] covers in the open position, the tools can be rotated out ready for use as shown. In Figure 12, each [[said]] cover contains serrated grooves (48) to make it easy to slide the cover open and closed. Figure 13 illustrates how either tool can be rotated to the user position easily and quickly. Figure 14 illustrates a cross section through the [[said]] pivot point and shows how the [[said]] cover (40) slides in [[said]] the grooves molded in the side walls of the [[said]] recess chamber (49) and captures the [[said]] tubular arm cross member (42) in a locked position.

~~Description Figure 15 FOURTH EMBODIMENT OF THIS INVENTION~~

[[In this]] Picture 15 shows an optional embodiment of the toothbrush ~~[[50]]~~ of the present invention, also providing a means for combining the tooth brushing cleaning function with the interdental brush function and the gum massage and stimulation function, all in one device, wherein two knurled or serrated threaded sleeves (45) ~~are provided to~~ extend or retract the interdental hard brush (28) and the gum massager ~~[[and]]~~ stimulator tip (30) out of the handle (51) of the toothbrush ~~as illustrated in Figure 15~~. Each of these ~~[[said]]~~ threaded sleeves, when rotated individually, threads out a threaded internal shaft (46) that extends ~~the tubular extension~~ an extension tube (44) with the interdental hard brush, and gum massager ~~[[and]]~~ stimulator tip attached to their ends.

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Opposite rotation of each of the ~~[[said]]~~ sleeves retracts the ~~[[said]]~~ threaded internal shaft and this causes the retraction of ~~[[said]]~~ the interdental hard brush gum massager ~~[[and]]~~ stimulator tip into the chamber that forms the handle of the ~~[[said]]~~ toothbrush. Close-out caps (47) hinged to the tube ends of the recess chambers will close each tube to prevent damage and contamination. These ~~[[said]]~~ close-out caps, or covers, operate and are attached to the ~~[[said]]~~ toothbrush handle in a similar manner as shown and described in Figure ~~[[7]]~~ (3) of ~~[[a]]~~ an optional previous embodiment. Figure 15 provides an exposed view that shows structural cross members ~~[[48]]~~ (55) that capture and support entrap the ~~[[said]]~~ threaded sleeves.

The body of ~~[[said]]~~ the handle is comprised of three chambers, a forward closed chamber (52), ~~[[a]]~~ a closed aft chamber (53) and a center open chamber (54) that capture the two threaded sleeves and provide access to them by rotating in order to rotate them to screw in and out the ~~[[said]]~~ internal threaded shaft with ~~the~~ extension tubes (57) (44) that hold the ~~[[said]]~~ interdental hard brush and the ~~[[said]]~~ gum massager ~~[[and]]~~ stimulator tip. In this manner, the ~~[[said]]~~ interdental hard brush

and the [[said]] gum massager [[and]] stimulator tip are attached to said tubular extensions tubes (37), that extend from the end of the [[said]] threaded shaft (46), and both ~~interdental hard brush and gum massager and stimulator~~ periodontal tools are attached to the said tubular extension in the manner described in previous embodiments.

32. This invention with its optional embodiments is simple in construction, easy to operate, unique in arrangement, function and assembly, and lends itself to economical manufacture. These features of the various embodiments, together with other objects and advantages which become subsequently apparent, reside in the details of the construction and operation, as more fully herein described and claimed, reference being added in the accompanying drawings, forming a part herein.

Although the description above contains many specifications, these should not be construed as limiting the scope of the invention, but as merely providing illustrations of some of the present embodiments of the invention, as well as equivalent embodiments.
